

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
April 2001

This report summarizes Los Alamos National Laboratory (LANL) activities completed during April of fiscal year (FY) 2001 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT met on April 2, 2001.

LANL representatives provided an update on March activities including the hydrogeologic studies, the bench and pilot studies, and the IM investigations. It was noted that LANL will proceed with paperwork and sampling to support offsite shipment of soil from the IM. Temporary Authorization (TA) and on-site treatment will continue to be evaluated as a back-up. Additional details are provided below in the sections of this monthly report covering these studies.

NMED-HWB and LANL representatives discussed the high explosives production sites (HEPS) portion of the Environmental Restoration (ER) Project baseline, which the ER project had recently provided to NMED-HWB, so that NMED-HWB could accurately update the HPT matrix. All of the ongoing TA-16-260 and related activities were briefly reviewed. LANL re-emphasized how the 260 outfall CMS was being pursued in parallel tracks – with both a surface and a subsurface component of the CMS/CMI.

LANL representatives reviewed spring and alluvial well data for before and after the Cerro Grande fire. Data for sodium, calcium, bicarbonate, RDX and barium were presented. Based on time-series plots and statistical tests, the geochemical effects of the fire were small, at least from July through September 2000. Statistically significant increases in constituent concentrations were observed for sodium, calcium and bicarbonate in some wells and springs. However the increases were typically less than 20 percent. RDX and barium showed almost no statistically significant post-fire effects. This result suggests that the data collected during the 3-4 years prior to the fire will be acceptable for CMS decision making.

The next HPT meeting is scheduled for May 7, 2001. Agenda items may include review of the HPT matrix, ecological risk studies, and TA-16-260 data review.

RCRA Facility Investigation (RFI) Report and CMS Plan– No new activities occurred during this reporting period.

Best Management Practices (BMPs)– BMPs are inspected quarterly and following significant precipitation events. IM fieldwork, including site restoration, is complete except for finalization of the zero-discharge dam. No BMP repairs were required this month.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. The Martin spring autosamplers were disturbed by wildlife, so some sampling data was missed during April. pH appears to be elevated (> 8) at the MDA-R and TA-16-260 alluvial wells and at SWSC, but not Burning Ground, spring. Data from the spring and well dataloggers was downloaded. Spring snowmelt in Canon de Valle is still ongoing. Flow in Canon de Valle begins near the silver outfall and continues almost to the location where the canyon doglegs. This is the maximum continuous flow in Canon de Valle that has been observed during the past five years. Stream profiles were completed in both Martin spring canyon and Canon de Valle in order to sample the peak of the hydrograph for spring snowmelt.

The wells, both alluvial and deep, were checked for both presence and level of water. All five alluvial wells in Canon de Valle contained water. The uppermost alluvial well in Martin spring canyon is almost dry. Fish-ladder seep, the waterfall at Fishladder canyon, and the Canon de Valle/Water Canyon confluence are all wet; however, the 90s Line Pond has dried up.

Quarterly sampling was completed at all of the locations discussed above that contained water.

Data analysis evaluating fire effects on Canon de Valle contaminants was continued. It appears that the immediate effects of the fire on RDX and barium abundance's in springs and alluvial wells was small. This conclusion is based on data through September 2000.

The annual readiness review for the ongoing CMS activities was completed.

The second quarterly sampling for CdV-R-15-3 was completed. Screens 4, 5 and 6 contained water. Samples from the bottom two screens had a sulfurous odor. This may be due to redox reactions associated with residual EZ-Mud.

In April, 2 samples from precipitation events were collected and archived for analysis.

Ecological Risk Pilot

Logistical issues for the upcoming ecological sampling were addressed by ER and ESH-20. The ESH-IDs, excavation permits, SSHASPs, and other paperwork were completed and approved. The readiness review for this sampling was completed.

CMS Bench and Pilot Studies—Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters. A pilot-scale unit is scheduled for deployment in Martin Spring canyon.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for summer of 2001.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results do not suggest that significant phytoremediation is occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

The readiness review for the Stormwater Management system deployment was completed in April. As part of the quarterly sampling, additional phytoremediation investigations were completed in the Burning Ground Spring area.

Interim Measure (IM)

Activities at the TA-16-260 IM were limited. Site restoration activities are complete except for capping of the zero discharge dam.

Public and Stakeholder Involvement— A presentation on the hydrogeochemical effects of the Cerro Grande fire on Canon de Valle chemistry was made at the Geological Society Meeting in Albuquerque.

Percentage of CMS Completed

LANL estimates 74 % of the CMS has been completed to date. Note that this percentage does not reflect the deep wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

General Problem (1) The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

Action to Rectify General Problem (1): LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle are being addressed (see above).

CMS Hydrogeologic Investigations

Problem (1): Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

CMS Bench and Pilot Studies

None.

IM

None.

Key Personnel Issues

None.

Projected Work for May 2001

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.

CMS Hydrogeologic Investigations

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis
- Stream profiling in Canon de Valle and Martin Spring Canyon

Ecological Risk Pilot

- The reconnaissance survey and initial round of sampling for the ecorisk pilot.

CMS Bench and Pilot Studies

- Preparation for deployment of Stormwater Management units

IM

- Data analysis and writing of IM Report
- Waste management, evaluation of waste data

Public and Stakeholder Involvement

None planned